

## JCSP 2008 Economic Transmission Development Work-to-Date

June 18, 2008 FERC Offices, Washington, D.C.



## **Workshop Locations and Schedule**

2007 2008 Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Kick-off: Pittsburg, PA November 1, 2007 **Data Gathering Capacity Expansion** Nashville, TN December 11 & 12, 2007 New Orleans, LA January 9 & 10, 2008 **Capacity Siting** St. Paul, MN February 5, 2008 **Economic Model Development Economic Model Runs** Charleston, SC April 29 & 30 **Economic Transmission Development and Model Runs** Hartford, CT June 4 & 5, 2008 Wilmington, DE June 19 & 20, 2008 St. Louis, MO June 23 & 24, 2008 Knoxville, TN June 26 & 27, 2008 Internal JPC Interim Stakeholder Meeting: Cincinnati, OH August 14, 2008 **Refinement of Economic Transmission Development** To be determined Location and Time **Final Economic Model Runs** Wrap-up Meeting: To be determined Location and Time



# Production Cost and Congestion Assessment Scenario Definitions



### Reference Scenario

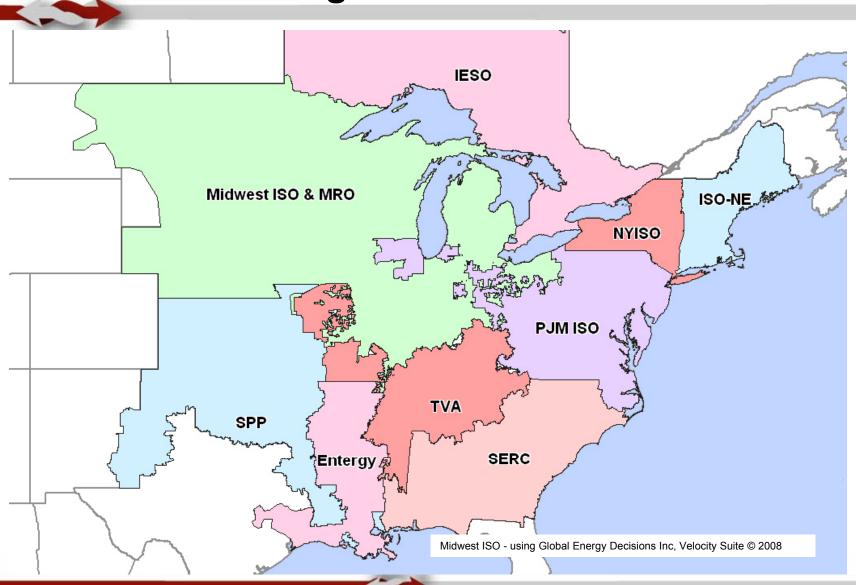
- Assumes existing renewable portfolio standards to be met with wind
  - Creates a 5% eastern interconnect wind energy model
- Models the power system as it exists today
- Base transmission expansion plans in-service

## 20% Wind Mandate Scenario

- Assumes 20% of the energy consumption comes from wind by 2024
- Reference Scenario wind accounted for in this Scenario
- Models the power system as it exists today
- Base transmission expansion plans in-service



# **Region Definition**





#### **Generation Assumptions**

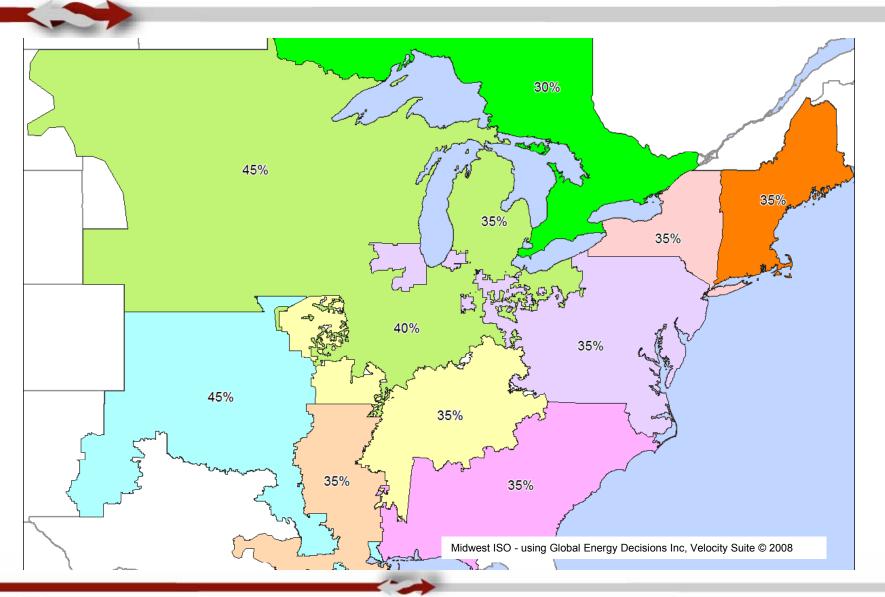


## **Existing Capacity Assumptions**

- Active Existing online Generation
- Planned a generator which is not online and has proceeded to a point where construction is almost certain
- Only known retirements are assumed for the study
- Re-licensing is assumed on all Nuclear Units
- Proposed Nuclear Additions are treated as "planned" units in the study
- Demand Side Management
  - Assumed existing penetration percentage stays constant throughout study period
- Wind is given a 15% capacity credit toward resource adequacy calculations

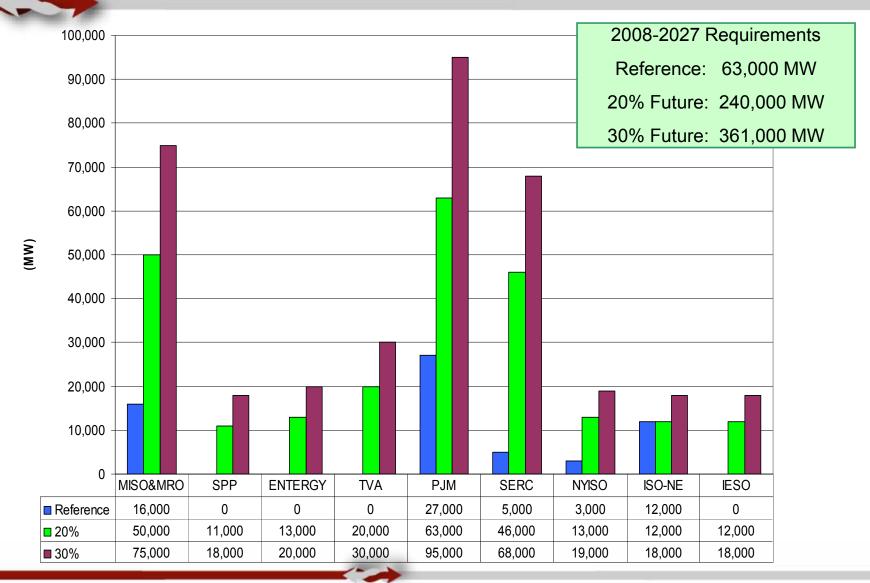


#### Regional wind capacity factors used in calculating wind requirements



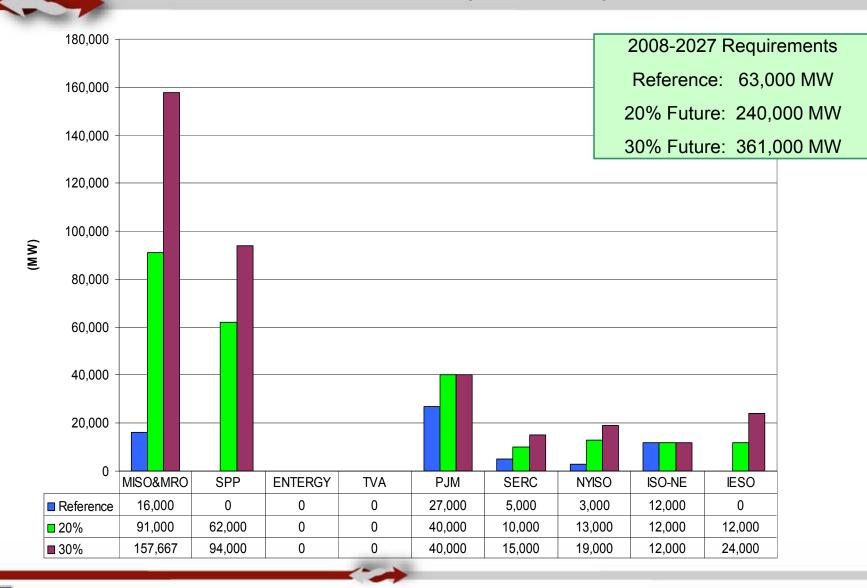


#### 2008-2027 (Study Period) Incremental Regional Wind Requirements





# Redistribution of Incremental Wind Requirements Based On Wind Quality/Availability

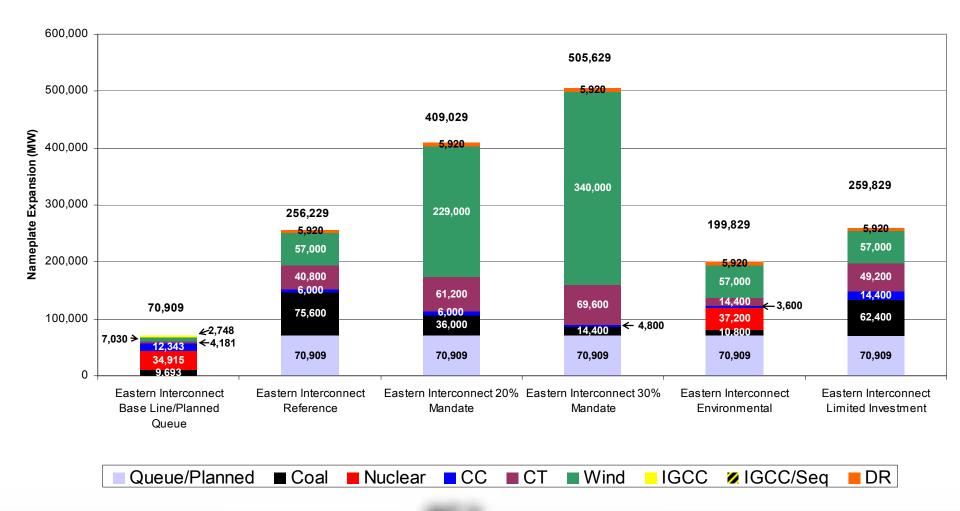




#### **Eastern Interconnect Expansion**



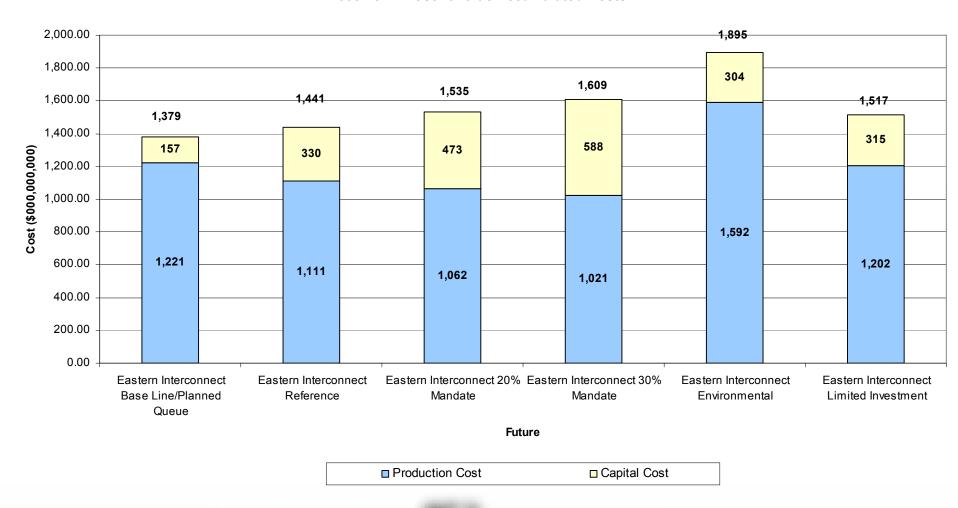
#### **Generation Nameplate Expansion 2008-2024**





#### **Cost associated with Eastern Interconnect Expansion**

#### 2008-2024 Present Value Accumulated Costs

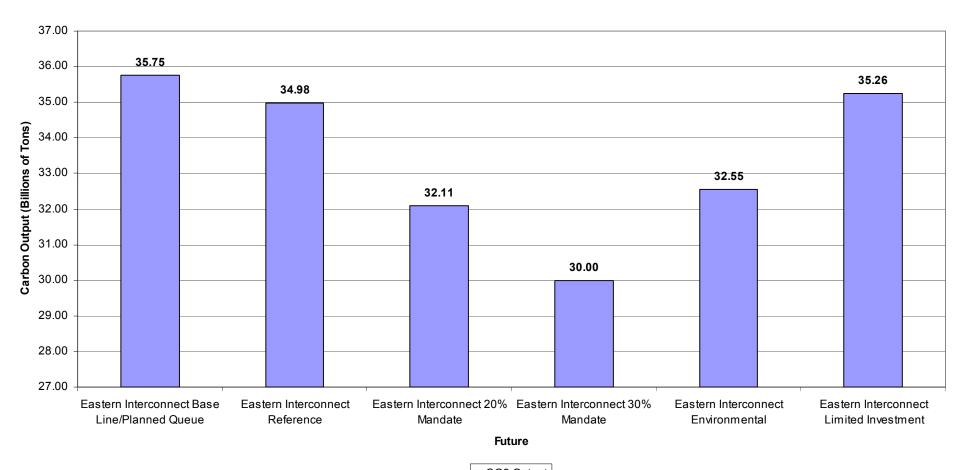




### CO<sub>2</sub> Output for Eastern Interconnect Expansion



#### 2008-2024 Cumulative CO2 Output



CO2 Output



#### **General Siting Methodology**

Transmission is not an initial siting factor, but may be used as a weighting factor all things being equal

Site by region with the exception of wind

"Share the Pain" mentality. Not all generation in a region can be placed in one state and one state cannot be excluded from having generation sited

Avoid Greenfield Sites for gas units (CTs & CCs) if possible - prefer to use all Brownfield sites

Site baseload units in 600 MW increments, & Nuclear at 1,200 MW

Limit the total amount of expansion to an existing site to no more than an additional 2,400 MW

Restrict greenfield sites to a total size of 2,400 MW

Limit using Queue generation in multiple futures



#### **Thermal Generation Site Selection Priority Order**



Priority 1: Generators with a "Future" Status

- Queue Generators without a Signed IA
- Global Energy's "New Entrants" Generators Will be referred to as "EV" Gens
- Both Queue and EV Gens are under the following status:
  - Permitted
  - Feasibility
  - Proposed

Priority 2: Brownfield sites (Coal, CT, CC, Nuclear Methodology)

The following Priorities not triggered in JCSP context:

Priority 3: Retired/Mothballed sites which have not been re-used Priority 4: Greenfield Sites

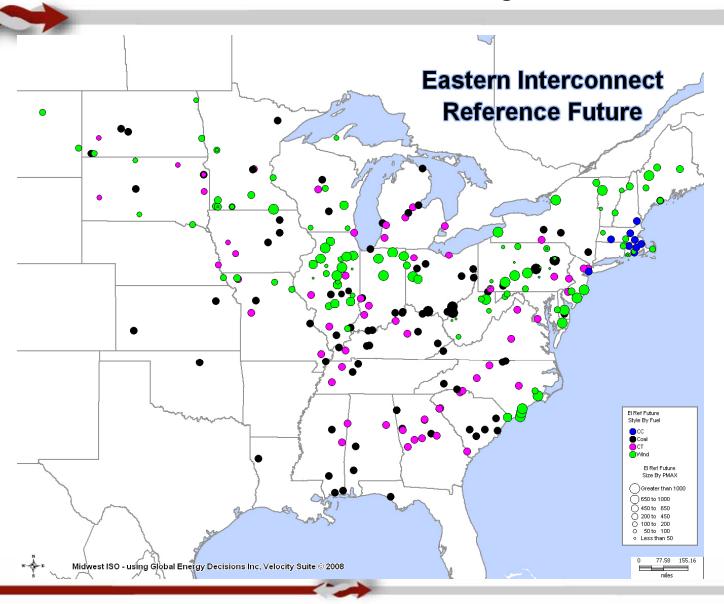
Queue & "New Entrants" in Canceled or Postponed Status

Priority 5: Greenfield Sites

Greenfield Siting Methodology



#### **Reference Future Siting**





#### **Renewable Future Siting (20% Wind Mandate)**

